



# Appendix G - Danvers Electric

## Energy Efficiency and Conservation Programs

Revision ID	Date	Author	Notes	Approval (initials and date)
1.0	9-6-2011	Clint Allen	The purpose of Version 1 is to release certain programs that have been validated for immediate implementation. Programs in 'pending' status are currently on hold requiring further analysis	MLB 06-19-2012

## Table of Contents

<b>1.0 Executive Summary .....</b>	<b>3</b>
<b>2.0 Residential Conservation Programs.....</b>	<b>3</b>
2.1 Residential Tier 1 and Tier 2 Services.....	3
2.1.1 Tier 1 .....	3
2.1.2 Tier 2 .....	3
2.3 Residential Appliance Rebate Program.....	4
2.5 Kill-A-Watt EZ Meter Residential Loan Program .....	5
<b>3.0 Commercial/Industrial Conservation Programs.....</b>	<b>6</b>
3.1 Commercial/Industrial Energy Audit Program .....	6
3.1.1 Commercial/Industrial Lighting Incentives .....	7
3.1.2 Commercial/Industrial HVAC Incentives.....	7

## **1.0 Executive Summary**

Danvers Electric (DE) implemented and/or upgraded various energy efficiency and energy conservation programs beginning 3<sup>rd</sup> Quarter, 2011. As part of this effort Danvers Electric is expanding and developing its Residential and Commercial Conservation and Energy Efficiency Programs. Implementing energy efficiency measures not only reduces electric bills for customers, but also can reduce Danvers Electric's exposure to the risk of highly volatile wholesale market prices. This document outlines the current state of Danvers Electric's energy efficiency programs and proposes future program enhancements.

## **2.0 Residential Energy Conservation Programs**

At the present time Danvers Electric provides the Tier 1 and 2 services to its residential customers including answering customer inquiries and performing home energy audits at no cost to the customer. Danvers Electric also offers appliance rebates for purchasing certain Energy Star rated appliances, refer to Section 2.3.

### **2.1 Residential Tier 1 and Tier 2 Services**

Danvers Electric offers assistance regarding conservation and energy efficiency measures to residential customers. Tier 1 and Tier 2 services and are structured around guidelines set forth by the Massachusetts Department of Energy Resources.

#### **2.1.1 Tier 1 Services**

Customers are directed to call an Energy Efficiency Specialist who answers inquiries concerning energy savings measures customers can enact to lower their electric bills. The customer may also qualify for a residential energy audit (Tier 2 service) based on the recommendation of the Energy Efficiency Specialist.

### 2.1.2 Tier 2 Services

Danvers Electric provides residential energy audits free of charge for customers qualified through the Tier 1 process. The Danvers Electric Energy Efficiency Engineer will follow up with the customer once the Residential Audit Report has been issued to the customer and will assist with the benefit analysis and how to proceed with the report's findings.

### 2.3 Residential Appliance Rebate Program

Danvers Electric currently has an Energy Star Certified Appliance Rebate Program in place, which gives Residential customers a rebate for purchasing Energy Star Certified appliances. Using the Appliance Rebate Program Planning Tool for MA State and Territory Energy Offices, the following appliances/rebates were analyzed:

Appliance Rebate Analysis Table										
Products	ENERGY STAR Criteria	Expected Annual Savings per Unit (kWh)	Average Product Lifetime (years)	Total Energy Over Lifetime (kWh)	Product Lifetime Savings (\$14.5/kWh)	Average Non-ENERGY STAR Price	Average ENERGY STAR Price	Average ENERGY STAR Price Premium	Appliance Lifetime Savings	Danvers Electric Rebate for 3 Year Payback
<b>Clothes Washers*: 1/1/11 Criteria</b>	MEF >= 2.0; WF <= 6.0	243	11	2,670	\$387.11	\$492	\$750	\$258	\$129	\$93.90
<b>Dishwashers: 7/1/11 Criteria</b>	<=307 kWh/year and <= 5.0 gallons per cycle	57	10	572	\$82.89	\$365	\$480	\$115	(\$32)	N/A
<b>Refrigerators</b>	20% better than Federal standard	105	12	1,260	\$182.70	\$1,150	\$1,180	\$30	\$153	\$114.53
<b>Freezers</b>	10% better than Federal standard	48	11	528	\$76.56	\$852	\$882	\$30	\$47	\$33.86
<b>Room Air Conditioners</b>	EER ~10% greater than Federal standard (~10.7)	49	9	439	\$63.64	\$180	\$220	\$40	\$24	\$15.76
<b>Central Air Conditioners</b>	>=14.5 SEER/ >=12 EER* for split systems; >=14 SEER/ >=11 EER* for single package equipment including gas/electric package units	159	11	1,747	\$253.32	\$1,126	\$1,219	\$93	\$160	\$116.60
<b>Air Source Heat Pumps</b>	>= 8.2 HSPF/ >=14.5 SEER/ >=12 EER* for split systems; >= 8.0 HSPF/ >=14 SEER/ >=11 EER* for single package equipment including gas/electric package units	1,033	12	12,394	\$1,797.19	\$5,700	\$6,700	\$1,000	\$797	\$597.89

Based on the Appliance Rebate Analysis Table, the following appliances are eligible for the rebate program wherein Danvers Electric will reduce the up-front cost for the customer resulting in a 3 year payback on the appliance.

<b>Danvers Electric Appliance Rebate Schedule</b>		
	<b>CY 2011</b>	<b>CY 2012</b>
Central Air Conditioners	\$100	\$115
Room Air Conditioner	\$0	\$35 + Free Disposal
Refrigerator	\$50	\$115
Air Source Heat Pumps	\$0	\$100/\$1,000 spent; \$600 max
Washing Machine	\$0	\$0
Dishwasher	\$0	\$0

Although the Appliance Rebate Analysis Table has determined that high efficiency washing machines could qualify for a rebate, because Danvers Public Works already offers a \$200 water efficiency rebate DE will not offer an electric rebate at this time.

To achieve a 3 year payback for room air conditioners, a \$15 dollar rebate has been calculated. However, to further promote this conservation measure, DE is going to offer a \$25 rebate and free disposal of the customer's old AC unit. To qualify for free disposal, in addition to the \$25 rebate, the customer must provide a Transfer Station AC Disposal Receipt at the time of rebate application submittal.

#### **2.4 Kill-A-Watt EZ Meter Residential Loan Program**

To help customers better understand and ultimately conserve energy usage, Danvers Electric implemented a Kill-A-Watt meter loan program. Danvers has (24) Kill-A-Watt EZ power meters available at 1 Burroughs St. Customers can borrow the meter for up to 2 weeks. To assess the value of the program, upon returning the meter, customers will be asked to fill out a short survey at 1 Burroughs.

### **3.0 Commercial Energy Conservation Programs**

#### **3.1 Commercial/Industrial Energy Audit Program**

Danvers Electric has developed an Energy Audit Program for its commercial and industrial customers with the opportunity for an evaluation of energy savings opportunities. Danvers Electric has contracted certified commercial and industrial specialists (ENE) to provide an energy management study and then develop a plan of action for each energy conservation measure. The audits cover such end-uses as lighting and heating, ventilation and air conditioning (HVAC). The specialist develops energy conservation measures that are end-use specific, based on standard engineering analysis, cost estimates derived from experience and similar projects as well as designed to improve or maintain existing comfort and lighting levels.

Danvers Electric has structured the program so that Danvers Electric will pay up to one half (1/2) of the cost of the audit not to exceed \$2,500; the customer pays the remaining balance.

Customers that participate in the Commercial/Industrial Energy Audit program will receive a copy of the C/I Audit Report and will be contacted by Danvers Electric personnel for a follow up interview to determine any rebates or incentives they may be eligible for and discuss what efficiency/conservation measures the customer is going to take. Danvers Electric offers the following incentives to any commercial/industrial customer who receives an approved energy audit through ENE.

##### **3.1.1 Commercial/Industrial Lighting Incentives -PENDING**

Danvers Electric offers a Commercial Lighting Incentive Program to its commercial and industrial customers. The rebate applies for any customer who receives an energy audit through the town and receives detailed Commercial/Industrial Energy Audit Report delineating recommendations from the Energy Specialist for lighting upgrades.

The lighting rebate is structured such that:

- Danvers Electric will provides rebates of \$200/kW of demand reduction up to \$2,000 per customer for pre-approved and recommended energy efficient lighting upgrade projects based on the results of the C/I Energy Audit Report.
- All projects must be pre-approved by the DE Energy Efficiency Engineer prior to commencement of work.
- All 4' T8 lamps and electronic ballasts must be listed in the MA Consortium for Energy Efficiency as "qualifying." Lists of all qualifying lamps and ballasts can be found on MA CEE's website: <http://www.cee1.org/com/com-lt/com-lt-main.php3>.

As a result of electric costs, Danvers Electric anticipates participation in a Commercial Lighting Rebate program to be active in 2012.

According to several industry reports, lighting accounts for the largest percentage of kWh savings potential as well as Peak Demand kW savings, at approximately 55 percent.

### **3.1.2 Commercial/Industrial Heating Ventilation and Cooling (HVAC) Incentives - PENDING**

Industry Studies indicates that Facility HVAC represents approximately 31% of potential electric savings as well as 33% or over 2,000 kW of potential Peak kW Demand reduction. Heating, ventilation and air conditioning (HVAC) systems typically consume the largest portion of energy in a commercial or industrial facility.

The HVAC rebate program encourages customers to purchase high-efficiency units when replacing failed units or for new applications as well as current equipment upgrades as recommended by a certified DE audit specialist in the C/I Audit Report. The HVAC rebate program is structured such that:

- Danvers Electric will provides rebates of \$100/kW of demand reduction up to \$1,000 per customer for DE pre-approved and recommended HVAC upgrade projects